AMSAT News Service Weekly Bulletins
Issue: ANS-346
Date: 2010-12-12
Sources: amsat-ans-2010-ans-346-weekly.txt

AMSAT NEWS SERVICE
ANS-346

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

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SB SAT @ AMSAT $ANS-346.01
ARISS Celebrates 10th Anniversary of Student Conversations with ISS Astronauts

AMSAT News Service Bulletin 346.01
>From AMSAT HQ SILVER SPRING, MD.
December 12, 2010
To All RADIO AMATEURS
BID: $ANS-346.01

On 21 December 2000, astronaut William Shepherd turned from his usual activities aboard the newly occupied International Space Station (ISS). Floating over to a "ham" radio attached to a station bulkhead, he called the Burbank School in Burbank, Illinois and was soon talking with 14 enthusiastic students from grades 1-8. This month, amateur radio operators world-wide celebrate the tenth anniversary of this first school contact from ISS.

Since that first contact, Amateur Radio on the International Space Station (ARISS) volunteers have conducted 565 successful contacts in 40 countries, allowing thousands of students to share the excitement of those first 14. Moreover, tens of thousands of students, faculty, and parents have participated by planning and attending these events.

ARISS contacts have prompted countless students to seriously consider pursuing science, technology, engineering, and math (STEM) careers, including becoming an astronaut. Educational programs and amateur radio clubs established at participating schools continue to inspire students long after the contact has ended.

The use of amateur radio in space began in 1983 aboard the Space Shuttle Columbia. The Shuttle Amateur Radio Experiment (SAREX) flew on 28 shuttle missions, proving the educational and crew morale benefits of ham radio. Ham radio also proved popular with the cosmonauts aboard space station Mir. The value of amateur radio in space was so apparent

to NASA and the Russian Space Agency that the ARISS radio became the first experiment to be activated on ISS.

ARISS is a volunteer program that inspires students the world over to pursue STEM careers by providing amateur radio communications opportunities with the International Space Station (ISS) on-orbit crew. Students learn about life on board the ISS and explore Earth from space through science and math activities. ARISS provides opportunities for the school community (students, teachers, families, and local residents) to become more aware of the substantial benefits of human spaceflight and the exploration and discovery that occur on spaceflight journeys while learning about technology and amateur radio.

ARISS is an international working group comprising delegations from 9 countries, including several countries in Europe as well as Japan, Russia, Canada, and the USA. The organization is run by volunteers from national amateur radio organizations and international AMSAT (Radio Amateur Satellite Corporation) organizations in each member country. ARISS team members in each country work with their respective space agencies (ESA, NASA, JAXA, CSA, and the Russian Space Agency). In the USA, ARISS works with the NASA Teaching From Space program.

[ANS thanks ARISS for the above information]

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SB SAT @ AMSAT $ANS-346.02
SpaceX Falcon 9 Mission Successful - Deploys Cubesats

AMSAT News Service Bulletin 346.02
>From AMSAT HQ SILVER SPRING, MD.
December 12, 2010
To All RADIO AMATEURS
BID: $ANS-346.02

SpaceX launched the Dragon spacecraft from Florida on a two-orbit test flight Wednesday, December 8 and the company brought the auto-mated capsule back to Earth less than three-and-a-half hours later.

A video of the Falcon 9 liftoff can be viewed at:
http://www.youtube.com/watch?v=Xi9ljTW3GEQ

Liftoff photos from pad cameras can be viewed at:
http://spaceflightnow.com/falcon9/002/remotes/

SpaceFlightNow.com's Photo Gallery of the launch can be viwed at:
http://spaceflightnow.com/falcon9/002/press/

Photos of the Dragon parachute landing in the Pacific can be viewed at: http://spaceflightnow.com/falcon9/002/splashdown/

During the flight four cubesats were deployed from the "trunk" section of the Dragon spacecraft. At press time the function of two of the cubesats have been identified.

The University of Southern California's (USC) CAERUS cubesat was deployed SpaceX Falcon 9 rocket. CAERUS is part of the "MAYFLOWER" Next Generation Technology CubeSat that is a joint effort with Northrop Grumman NOVAWORKS group. CAERUS is licensed by the FCC in the Experimental Service. It also has an amateur callsign and a downlink in the 70cm band:

Call Sign: KJ6FIX
Downlink Frequency: 437.600 MHz (not coordinated by IARU)

Beacon Output Power: 900mW
Modulation Type: AFSK, 1200 baud
TLE: Updated on website, right after launch.

The CAERUS website is at: http://tinyurl.com/37w8map. The beacon data can also be translated with the jar applet provided on this website.

The second cubesat identifed aboard the Falcon X launch was the US Army SMDC-ONE nanosatellite mission which is a store and forward satellite. The primary objective of the first flight wass to receive data from a ground transmitter and relay that data to a ground station. The technology is planned to be expanded to build a number of identical satellites and deploy them together into Low Earth Orbit to simulate enhanced tactical communications capability.

[ANS thanks Omair A. Rahman at the University of Southern California, SpaceDaily.com, and SpaceFlightNow.com for the above information]

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SB SAT @ AMSAT $ANS-346.03
December AO-51 Schedule Features VHF BBS Test, SKN, Dual SU Downlink

AMSAT News Service Bulletin 346.03
>From AMSAT HQ SILVER SPRING, MD.
December 12, 2010
To All RADIO AMATEURS
BID: $ANS-346.03

AMSAT-NA VP Operations Drew KO4MA says the December 2010 AO-51 schedule has been released. Some of the dates of mode changes may move a day or so according to command station availability.

Note the 2m up BBS test beginning December 12. Beginning on December 17 a dual downlink of UHF and S-band will be available. AO-51 will feature its CW up, FM down mode for Straight Key Night.

At the end of December we go back into eclipses for a LONG time, so the overall power budget will shrink, and the command team will reinstate the new PL mode, and the satellite will likely be off in eclipse.

December 12 (late UTC)

FM Repeater, V/U
Uplink: 145.920 MHz FM (no PL tone)
Downlink: 435.300 MHz FM

9k6 Baud PBBS Operations, V/U
Uplink: 145.860 MHz FM at 9600 baud
Downlink: 435.150 MHz FM at 9600 baud

December 17 (late UTC)

FM Repeater, V/SU
Uplink: 145.880 MHz FM (no PL tone)
Downlinks: 2401.200 MHz FM *and* 435.300 MHz FM (at low power!)

December 22 (late UTC)

FM Repeater, V/U
Uplink: 145.920 MHz FM (no PL tone)
Downlink: 435.300 MHz FM

9k6 Baud PBBS Operations, L/U
Uplink: 1268.705 MHz FM at 9600 baud
Downlink: 435.150 MHz FM at 9600 baud

December 30 (late UTC)

CW/FM Repeater, V/U For Straight Key Night
Uplink: 145.880 MHz CW
Downlink: 435.300 MHz CW over FM

9k6 Baud Telemetry
Downlink: 435.150 MHz FM at 9600 baud

As always, keep up with the latest AO-51 Control Team news at:
http://www.amsat.org/amsat-new/echo/CTNews.php

[ANS thanks Drew, KO4MA for the above information]

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SB SAT @ AMSAT $ANS-346.04
AMSAT-UK FUNcube Documents On-Line

AMSAT News Service Bulletin 346.04
>From AMSAT HQ SILVER SPRING, MD.
December 12, 2010
To All RADIO AMATEURS
BID: $ANS-346.04

AMSAT-UK says they intend to publish as many of the working documents as possible for their FUNcube satellite and the first two documents are now available. The Mission Requirements Specification and the PA Board Specification can be downloaded from:
http://funcube.org.uk/working-documents/

Pictures and videos from the recent FUNcube developers meeting at Martlesham are at:
http://funcube.org.uk/working-meetings/cubesat-mtg-1314-nov-2010/

The UK Space Agency is proposing to use the AMSAT-UK FUNcube boards as part of its innovative new CubeSat UKube-1 slated for launch in December 2011.

The United Kingdom Space Agency website now includes some more details of the UKube-1, a 3U CubeSat (10 * 10 * 30cm) project. See:
http://www.ukspaceagency.bis.gov.uk/20084.aspx

The baseline design for this satellite includes a set of FUNcube boards to provide the educational outreach for the project. AMSAT-UK are presently discussing the precise details of this arrangement with the UKube-1 project team. This development will enable a much higher level service to be provided for Science, Technology, Engineering and Mathematics (STEM) outreach to schools than would be possible with just a single spacecraft.

An information pack is provided by the UK Space Agency is at
http://www.ukspaceagency.bis.gov.uk/assets/ZIP/CubesatAOpayload.zip

BBC report on UKube: http://tinyurl.com/2w3rgyc (bbc.co.uk site)

FUNcube website
http://www.FUNcube.org.uk/

[ANS thanks Trevor, M5AKA, AMSAT-UK, and the SouthGate ARC News
 for the above information]

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SB SAT @ AMSAT $ANS-346.05
Remembering Lost UNITEC-1 - Japan's Akatsuki Problem at Venus Encounter

AMSAT News Service Bulletin 346.05
>From AMSAT HQ SILVER SPRING, MD.
December 12, 2010
To All RADIO AMATEURS
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UniverseToday reported that Japan's first Venus space probe has arrived at the planet but encountered problems while attempting orbit insertion and went into safe mode. It took longer than expected (an hour and a half) to regain communications after a known 22 minute blackout with the Akatsuki spacecraft, and apparently controllers are still trying to ascertain the spacecraft's orbit. They have regained some radio communi-cations. Telemetry analysis confirmed the spacecraft was in safe mode.

The planned orbit for Akatsuki ranged between 300 and 80,000 kilometers (186 to 49,600 miles), looking for signs of lightning and active volcan-oes.

Once communications were restored JAXA was able to determine that the probe's High Gain Antenna is working and telemetry from the spacecraft is back to normal function as is full control and stabilization. AKATSUKI is in a Sun circular orbit after not reaching Venus orbit.

Read the UniverseToday story at: http://tinyurl.com/2cfgw5p
and at: http://tinyurl.com/2vvl8yd (SpaceCoalition.com)

The May 21, 2010 Akatsuki launch also carried the UNITEC-1 amateur radio satellite with the callsign of JQ1ZUN. Its 5840.000 MHz, 4.8W beacon was initially copied from low earth orbit but the signal was lost days later. UNITEC-1 would have become the world's first university satellite which went beyond Lunar orbit.

[ANS thanks UniverseToday for the above information]

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SB SAT @ AMSAT $ANS-346.06
Writing Opportunities for Amateur Radio in Space

AMSAT News Service Bulletin 346.06
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BID: $ANS-346.06

IAA Conference on University Satellites Missions and Cubesats
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The December 18 deadline for abstract submissions for the 1st IAA Conference on University Satellites Missions and Cubesat Conference is rapidly approaching. This conference will be held in Rome on January 24-29, 2011. Early registration closes on January, 10th. Those who register before this date will have a discount rate. Full information is posted at: http://www.gaussteam.com under the

"Events" tab.

Call for papers for 2011 SA AMSAT Space Symposium

The 2011 SA AMSAT Space Symposium will be held in Gauteng on Saturday 26 March 2011 at Vodaworld in Midrand. This is the first call for papers. Authors are invited to submit a synopsis in a MSWord document not exceeding 300 words. The synopsis should be mailed to: saamsat@intekom.co.za (with Space Symposium 2011 in the subject line). The theme of the conference is Innovation in Space Communication. Closing date for paper proposals and a synopsis is 20 January 2011. For more details visit: http://www.amsatsa.org.za.

Call for Papers: 15th Annual SEVHF Society Conference

The Southeastern VHF Society is calling for the submission of papers and presentations for the upcoming 15th annual Southeastern VHF Society Conference to be held in Huntsville, Alabama on April 29th and 30th, 2011. Papers and presentations are solicited on both the technical and operational aspects of VHF, UHF and Microwave weak signal amateur radio.

Contact Steve Kostro, (e-mail: SVHFS2011 AT downeastmicrowave DOT com) by January 8th, 2011 if you wish to make a presentation or submit your paper. Deadline for the submission of papers is March 11, 2011. For further information and updates about the conference please go to: http://www.svhfs.org

Call for Papers: 45th Central States VHF Society Conference

The Central States VHF Society is hosting their 45th Conference July 29-30, 2011 in Irving Texas. They are currently looking for papers relating to amateur radio above 50 MHz. Anticipated topics include: Design and build of VHF thru microwave equipment, VHF DXPeditions, Antenna Design, Weak Signal Reception Techniques. Deadline for papers is May 1, 2011. Papers should be sent to: Kent Britain <wa5vjb@flash.net>

[ANS thanks the IAA, SA AMSAT, and Robin Midgett K4IDC 2011 Conference Program Co-Chair, SVHFS; Chuck Clark, AF8Z for the above information]

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SB SAT @ AMSAT $ANS-346.07
Satellite Shorts From All Over

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+ For those who collect archived publications here is a link to a recently posted digitized copy of the 1985 1296/2304 MHz Conference which has evolved into the Microwave Update MUD Conference. Thanks to the work of Brian, WA1ZMS, these proceedings have been digitized and can be downloaded in 7 sections from http://www.wa5vjb.com in the Reference Section.

+ The AMSAT India newsletter is back after a long break and will be published every month. A softcopy of the newsletter can be found at: http://amsatindia.org/Newsletter/AMSATINDIA-News-Dec2010.pdf Archives are at http://amsatindia.org/Newsletter/

(via Nitin, VU3TYG, Secretary, AMSAT India)

+ AMSAT-ZL's Fred Kennedy, ZL1BYP says the KiwiSAT team is in need of a small quantity supply source of space quality thermally conductive epoxy for KiwiSAT. They will need probably less than 10 grams total over the last few months of KiwiSAT construction. Minimum order quantities have been quoted as 100 tubes and this amount is not needed nor can be afforded. Contact Fred at: fredk@kcbbs.gen.nz if you can help.

+ Henk, PA3GUO has posted a YouTube video (HD) that features the O/OREOS satellite from launch to telemetry reception and decode, including DK3WN's Softwar and Mission control upload: http://www.youtube.com/watch?v=Qh6lH5vqw-Y

Henk also has a video of the 'bare' telemetry stream at: http://www.youtube.com/watch?v=M4Ka-RVpEHU

O/OREOS audio recording: http://www.pa3guo.com/OOREOS_PA3GUO.mp3
FASTRAC/FAST1 audio recording: http://www.pa3guo.com/FAST1_PA3GUO.mp3
(Henk says you can use MixW with your MP3 your player to decode the telemetry.)

+ Roland PY4ZBZ reports that Yuri UT1FG/MM, has been active at sea from the vessel M/V "MOTTLER", on SO-50, FO-29 and HO68, in the squares: GG85, GG54, GE06, FD37, FD29, FE82, FE81, FE20 and FE21, from Rio de Janeiro to Chili via the Strait of Magellan.

+ UniverseToday.com declares, "What a view!" A photograph taken by one of the astronauts on the International Space Station shows several snow-covered volcanoes on Russia's Kamchatka Peninsula. See: http://tinyurl.com/24ccnz4

+ The Nanosail-D nanosatellite may have failed to eject from FASTSAT. NASA had planned to eject Nanosail-D from its cannister on December 6. Initial telemetry indicated that ejection was successful. It also now appears that the solar sail may not have unfurled. NASA continues to investigate. The NanoSail-D amateur radio beacon will transmit a one-half second data signal every 5 seconds on 437.270 MHz if it becomes active. The satellite will operate primarily on battery power because of the short duration of the mission.

+ The next crew arriving at the International Space Station on December 17 includes two radio amateurs: US astronaut Catherine Coleman, KC5ZTH, and the European Space Agency's Paolo Nespoli, IZ0JPA.

[ANS thanks everyone for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office. And with that please keep in mind that upon receiving his invitation to his radio club's Christmas Party the ham decided it was time to get spruced up.

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM